Stack

Objective

* To gain understanding of how an implementation of an ADT is used by an application program.
* To learn how stack can implemented and its operations
* Implementation of stack using array and linked list both.

Task

1. Array based stack
2. Linked List based stack
3. Checking for palindrome

Problems

1. Implement stack using array. Complete the following methods in stack class.

public class ArrayStack {

int stackList[];

int top;

static final int MAX = 100;

public ArrayStack() {

stackList = new int[MAX];

top = -1;

}

public boolean empty() {

}

public int pop() {

}

public void push(int entry) {

}

}// arraystack

public class ArrayStackDemo {

public static void main(String[] args) {

stackList.push( 95 );

int x = stackList.pop();

try

{

ArrayStack Mystk = new ArrayStack();

Mystk.push( 1 );

Mystk.push( 3 );

Mystk.push( 2 );

System.out.println( st.pop() );

Mystk.push( 5 );

System.out.println( st.pop() );

System.out.println( st.pop() );

}

catch ( Exception e )

{

System.out.println( “pop() on empty stack” );

}

}

}

1. Implement stack using linked list. Complete the methods of LinkedStack class.

class StackNode

{

object info;

StackNode next;

public StackNode(){}

public StackNode(Object j, StackNode p)

{info = j; next = p;

}

}

public class LinkedStack

{

StackNode top;

public LinkedStack()

{

top = null;

}

public boolean empty()

{

return (top == null);

}

public int pop() {

}

public void push(int entry) {

}

}

1. Checking of string

Write a program to check to see if a string is a palindrome.

“A *palindrome* is a word that is spelled the same both forwards and backwards.” For example, "kook", "dad", "civic", and "a" are all palindromes.

The technique uses two stacks to determine if a word is a palindrome:

* Push all string character in to the stack.
* Pop all character of string from stack and push on to the second stack.

Note: If string is of odd character than pop one more char from first stack but not push in to the second stack.

* Compare two stacks character by character, if same than it is a palindrome string.